EPA finds evidence of tear gas

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DEFENSE TECHNOLOGY

The epidemiological study of Homa Hills residents continues with tests on soil, air, blood and urine samples collected from properties and neighbors of tear-gas manufacturer Defense Technology.

Eight soil samples were gathered two weeks ago from properties surrounding the tear-gas plant, said Joyce Ackerman, on-scene coordinator for the U.S. Environmental Protection Agency in Denver. She's received reports on two of the samples: testing laboratories found chlorobenzaldehyde in the parts-per-billion range, Ackerman said. The chemical is a metabolite or breakdown product of CS tear gas, which is manufactured and tested at the plant.

One part per billion is equivalent to four drops of water in an Olympic-size pool of 64,000 gallons.

"We screened for about 75,000 different chemicals," Ackerman said. The tests didn't find any pesticides or herbicides which might account for the scorched-earth appearance of the Mayo property directly downwind from the tear gas plant.

"We didn't find any CS," Ackerman said.

However, extremely small concentrations of CS were found in an earlier soil test, said Chris Weis, an EPA toxicologist who serves as science coordinator and advisor to Ackerman's investigations. Although it was found at the part-per-billion level, it is a clear indication that there have been releases of CS from the Def-Tech plant, Weis said.

Def-Tech Director of Marketing Communication Julie Anderson said Thursday that she had not been informed of the EPA's findings.

"As far as I know, we have not been advised of that," she said.

She said she would speak to Def-Tech Director of Research Dave Dubay about the report this morning.

Weis said CS is known to be a strong sensitizing chemical compound – that once people have been exposed, some exhibit allergic contact dermatitis including redness, swelling, blistering and itching of the skin. Weis said he hadn't heard of more severe symptoms like nausea or vomiting.

Working with the Uniformed Services University in Bethesda, Md., Weis said he now has a clearer understanding of what CS tear gas breaks down into in the outside environment and within the human body.

Depending on conditions, Weis said, CS can be either long-lasting in the

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environment, or it can quickly break down. "CS is a highly insoluble compound, meaning it is hard to hydrate or mix with water. In a dry environment like Wyoming, it could last quite a while. Yet if water ever comes in contact with it, it breaks down rapidly," Weis said.

Because most chemical compounds break down, scientists can identify their "chemical fingerprints," Weis said. In the outside environment, under the influence of air, sunlight and water, CS's fingerprint shows up in cyanide-based compounds or malononitrile.

Processed by the liver and kidneys in the human body, CS becomes a water-soluble compound for quick elimination, Weis said. The metabolite that labs will look for is chlorobenzoic acid, Weis added.

Working with the Wyoming Department of Environmental Quality, the EPA hopes to have air-monitoring samples to work with this month and will be able to send dust and attendant vapors to a lab for analysis.

County, state and federal members of the epidemiological team are also waiting for results from laboratories assigned to test blood and urine samples collected last week from 15 Homa Hills residents.

Ackerman said the soil, air and body fluid test results should start rolling in within the next two to three weeks.